Memorial
University of Newfoundland

UNIVERSITY-ACOA SCIENCE AND TECHNOLOGY CONSULTATIONS

"The Role of Universities in Economic Development"

November 6th, 1995

Atlantic Canada Opportunities Agency
Agence de promotion économique du Canada atlantique

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UNIVERSITY-ACOA SCIENCE AND TECHNOLOGY CONSULTATIONS

"The Role of Universities in Economic Development"

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BACKGROUND

On August 25th, 1995, Memorial University and the Atlantic Canada Opportunities Agency (ACOA) hosted a round table science and technology consultation regarding the role of universities in economic development. The consultation was held in the boardroom of the Faculty of Business Administration at Memorial University. It was co-chaired by Dr. Arthur May, President of Memorial University and Mr. Martin Abrams, Vice-President, Atlantic Canada Opportunities Agency. Participants included senior officials of five Atlantic universities, four prominent high technology companies, two National Research Council research centres and the Atlantic Canada Opportunities Agency. A list of participants is included as Attachment 1.

Section 1: Introduction and Context for Discussion

Dr. Arthur May

Dr. May introduced the theme for the science and technology consultation "The Role of Universities in Economic Development". He stated that an indication of the change which has occurred within universities is the fact that having such a role is now widely accepted. He then focused on university research and development which he presented as having a direct link to economic development and employment in the region. He summarized the state of research and development as follows:

- ***Low Level of Private Sector R & D in Canada***
  - The private sector conducts about 50% of R & D in Canada versus an average of two-thirds in other developed countries and three quarters in Japan.
- ***Changing Government's Policies for Funding R & D***
  - In the past government funding in Canada has been strong but it has stopped growing and is likely to decline.
- ***Concentration of Private R & D***
  - Private sector R & D is concentrated in central Canada.
- ***University R & D is Concentrated***
  - Although there are some 90 universities in Canada, just a third are research active and 70% of those are in Ontario and Quebec. Of the four largest research universities, one is in Ontario, one in British Columbia and two are in Quebec.

- *Impact of Social Policy Reform*

  - Reductions in funding due to social policy reform puts university R & D at risk. Universities may be able to adjust to funding cuts by increasing student fees but students will likely object to their fees being used to fund research.

- *Atlantic Canada Context*

  - There is a significant challenge to hold on to existing R & D capacity in the region (university and non-university) in the face of an increasing centralizing tendency which would inevitably mean more concentration of research infrastructure, funding, and personnel in central Canada

Dr. May concluded by posing four questions which the ACOA representatives might address in the context of the day's consultation:

(1) Where do universities fit in promoting economic development?

(2) What can be done to help universities fit better?

(3) If R & D is linked to economic development, then how can R & D be promoted?

(4) Should R & D be promoted differently in Atlantic Canada than in other regions of the country?

Mr. Martin Abrams

Mr. Abrams stated that ACOA recognized the link between regional economic development and R & D. He said that one objective of the session was to determine if the right machinery was in place so that Ministers could effectively assess the public sector role in this area. He noted that, in the past, making decisions regarding Science and Technology was difficult as the area was complex and many issues were quite technical. Mr. Abrams concluded by noting that the session would be useful if the participants were able:

- to crystallize the right 'questions' for policy makers;

- assess the effectiveness of the links between the universities, the private sector, and the public sector.

Section 11: Presentations

During the consultation, there were a number of presentations made by participants which addressed particular policy issues or illustrated particular experiences. In this section the key points raised by the speakers are summarized and for the initial two presentations background materials are provided in the attachments.

Universities and Economic Growth

Participants were referred to a briefing note entitled "Universities and Economic Growth" (Attachment 2). The paper identifies two trends related to R & D: that private sector R & D contracts go to world class researchers wherever they are, and that commercial facilities can often be attracted to establish operations adjacent to world class centres of R & D. Given these trends a number of questions which were raised in the briefing paper were reviewed and two issues in particular which the consultation might address were noted:

1. ***R & D as an Export Industry*** The performance of research is in itself a significant industry which attracts millions of dollars to this region and employs thousands of people in relatively high quality jobs. How can universities do more, especially for the private sector? Can ACOA enhance this capability?

2. ***Receptor Industries*** There is a problem with the lack of "receptor" industries in the region. Can universities serve as a magnet for attracting such industry to the region? Do they wish to have this role? Can ACOA help?

The Case for Concentration of Research

Starting with the premise that a primary objective for undertaking research is to create economic activity, the need to concentrate facilities, personnel and funding to achieve a "critical mass" in specific areas, provide a clear focus for spin-off industries and reduce duplication (save money) was highlighted. It was stated that there was inadequate concentration in Atlantic Canada even in areas such as oceans technology where Newfoundland is promoted as a centre of excellence. Further, it was proposed that ACOA should promote research concentration as a policy, help decide what is to be concentrated where, promote the concentration and develop the community. (Presentation is included as Attachment 3).

University-University Collaboration

Some of the critical problems associated with university research and development in the Atlantic Region were identified as: lack of critical mass, distance from R & D facilities, and competition with much larger universities. The success of collaboration between Memorial and Dalhousie Universities in Clinical Trials Atlantic was described and it was noted that by working together the universities had been able to attract, to the region, clinical trials by pharmaceutical companies which have traditionally been done in central Canada.

Industry-Government-University Collaboration

The recent positive experience of a company with Memorial University and ACOA was related as an example how collaboration can be built between the private sector, universities and government agencies. The presenter said that work which his company was undertaking related to the low gravity environment highlighted the need to utilize advanced materials technology. An initial linkage was made with the Colorado School of Mines and in order to facilitate work in St. John's, the Faculty of Engineering at Memorial was approached regarding establishing an advanced materials laboratory. Subsequently, the work was expanded to include the hypergravity environment and arrangements made to use the centrifuge at C-CORE. He said that the potential for future work in this field for NASA is very significant and it has been made possible by the receptivity of individual university personnel and funding support provided by ACOA.

Section III: Discussion

During the consultation, discussion of issues was intense and free-flowing, punctuated by proactive questions from the Chair. In this section, the major issues are identified along with a summary of discussion points and action items raised by the participants. In some cases the opinions of participants were diametrically opposite but for most issues there was general agreement regarding the current state of Atlantic Canada and potential initiatives which might be implemented.

Issue 1: Collaboration among universities and between universities and the private sector.

Comments/Information

- General agreement that collaboration between universities and between universities and the private sector is important.
- The Centre for Fisheries Innovation and the Atlantic Clinical Trials were noted as initiatives where groups are working together but this was noted as exceptions to the rule.
- The most effective linkages are led by industry.
- Projects which work are those brought to universities by the industry -- if industry sits back then they will not get action.
- Universities should recognize that industry will act in its own interest -- good companies may act in their long term interest.
- There are examples of where the receptivity of universities to industry has been very good and examples where receptivity has been very poor.
- Atlantic Canada does not collectively celebrate successes
- The organizational structure of ACOA is restrictive to Pan-Atlantic collaboration. That is, provincial rivalries exist between offices.
- A large percentage (perhaps 90%) of university researchers are not interested in industrial collaboration.

Recommendations

- Collaborations with government laboratories should be promoted.
- Universities should ask what help industries want; that is, explore what the problems of industry are.
- When dealing with the private sector, universities should be prepared to "break-the-rules".
- Universities should recognize and deal with the disincentives for researchers to work with industry.
- University policies towards promoting industrial collaboration should focus on the small group of interested researchers.
- University/private sector relationships should be encouraged at the level of the individual researcher.

Issue 2 : Global Nature of Research

Comments/Information

- Foreign funding of research in Canada has risen from 3% to 13%.
- C-CORE research funding from international sources has risen from zero in 1979 to 30% of total funding in 1994.
- Small high technology companies in Atlantic Canada also depend on international funding for research and development.

Recommendations

- In Atlantic Canada, industry and universities, should be moving beyond level playing fields and looking for competitive advantages. For example, UNB's research thrust in pulp and paper takes advantage of a large established industry in the province.

Issue 3: University Researchers

Comments/Information

- Vast majority of researchers consider themselves a success if they get $50,000-$70,000 per year from a government agency.
- Universities must hire the best researchers in a given field. One problem with this is competing with industry and other universities for salary and research start-up support.
- University culture looks down on anything but curiosity driven research. Levers need to exist to help support those at the graduate level interested in entrepreneurship in science and engineering.
- There is an opportunity for change in universities created by the expected level of faculty turnover.
- Many successful technical entrepreneurs have come from universities. However, these are not graduate students but experienced/established researchers.
- The University of New Brunswick offers a certificate program in Innovation and Management which is available to graduate students.

Recommendations:

- University plans for future research focus should concentrate on those researchers with a broad vision and an international stature in their particular field.
- University recruiters should look for faculty with vision/entrepreneurship.
- Universities should attempt to identify winners early in their graduate studies and "imprint" them regarding entrepreneurship.
- Universities should introduce innovative graduate programs. An example, is the University of Warwick where a doctorate in engineering can be earned through undertaking a project(s) with industry.
- Government should provide primary financial assistance to support post doctoral fellows in selected areas.

Issue 4: Halifax - An Example of Concentration Versus Focus

Comments/Information

- Suggested that significant research activity has been concentrated in Halifax in hopes that it would be the "Waterloo of the east".
- Halifax has been identified as having a high number of Ph.Ds per capita and if economic activity was linked to Ph.Ds they should be doing quite well.
- The development of research capability in Halifax was described as haphazard growth which has not reached its full potential because it was not focused.
- The difference between Halifax and Waterloo related to R & D is primarily a difference in focus in their universities, the University of Waterloo is very narrowly focused while Dalhousie has a broad research program.

Issue 5: Provincial Research Commitment

Comments/Information

- Some provinces, particularly Quebec, Ontario, Alberta and British Columbia have shown a high commitment to R & D through provision of provincial grants. In Atlantic Canada, by contrast, provincial governments have a low commitment as shown by the low level of resources committed to R & D.
- Suggested that the increase in operating grants by MRC to Ontario, Quebec, Alberta and British Columbia is a direct result of increased spending on medical research by these provincial governments.
- Ontario graduate student scholarship program was described as a very powerful mechanism for supporting research in universities.

Recommendations

- Atlantic Provinces should provide matching funding of up to $50,000 to researchers who obtain industrial research contracts.

Issue 6: Administration of Government Research

Comments/Information

- Efficiency in government research might be promoted by having a single administration for all government research in a particular city/region /province.
- Central administration could increase the likelihood of more "red tape" which would impede the effectiveness research activities.

Recommendation

- Government research entities should be small and agile.

Issue 7: Organizations which Bridge the Research-Commercialization Gap

Comments/Information

- In NOVAcorp is a crown corporation set up by the Government of Nova Scotia to be a "technology bridge". Activities include: smart incubation of new companies, investment in the growth of firms and commercialization of new products. The long term goal of government is to privatize the crown corporation.
- Centre for Cold Ocean Research (C-CORE) is a corporation established and owned by Memorial University. It undertakes industrial (contracted) research in a variety of fields building on its base in cold oceans technology.
- Seabright Corporation is a corporation established and owned by Memorial University. It is mandated to (1) "mine" what has promise in research at the university and bring it to market and (2) help local industry utilize the expertise of the university. Experience after a number of years' operation has shown that it is difficult to get financing for new spin-off companies. Therefore, the strategy has changed to pursuing linkages with medium sized companies, usually from out of province, to commercialize research but keep economic benefits (e.g. manufacturing) in the province. With regard to helping local industry, there have been successes but also problems with fit and timing.

Issue 8: The Private Sector in Atlantic Canada

Comments/Information

- Growth of companies in Atlantic Canada is restricted more by management ability and marketing than technology.
- Some small companies are incubated too much.
- In the 1980s there was a blooming of technical entrepreneurship in Atlantic Canada, however, current experience is that fewer of these technical experts are coming forward and this could be a major impediment to development.
- The situation in Prince Edward Island is unique due to the small size of the economy and being characterized by very small companies on one hand, and very large companies (McCains/Cavenish Farms) on the other.
- Many large private sector companies operating in the Atlantic Provinces have head offices in central Canada and decisions to undertake R & D are usually head office decisions.

Recommendations

- Government should identify how many R & D companies there really are in Atlantic Canada, what their levels of activity are and how much government funding they receive.
- If the challenge is to capture the economic development of Science and Technology investment then it is a business problem and should be addressed as such.

Issue 9: The State of University Management

Comments/Information

- Universities have difficulty in focusing because they approach the issue collegially. Even if all agree that concentration of research programs is the best strategy , there will be opposition to reducing support in any other area.
- Universities must deal with the issue of focus themselves.

- One problem which universities have is that their graduates think the university is the same as when they attended -- this is not true, universities have changed.
- University Presidents may not be able to direct researchers but they can provide leadership and allocate resources.
- There is no substitute for leadership in universities.

Recommendations

- Universities should take steps to develop a more focused culture and be more selective in hiring.
- University management should be empowered to make changes.
- Universities must assure industry and government that they will respond to industrial research opportunities.
- The definition of a university should be broadened to include in their mandate "contribution to economic development".

Issue 10: The State of Marketing at Universities

Comments/Information

- Universities spend very little on marketing and sales related to R & D versus private companies who can expect to spend 15% of total revenues.
- Research officers typically provide cost estimates rather than undertake marketing.
- Some researchers are very good marketers, the question is how to identify and support this small group.

Recommendations

- Universities should engage professionals to market their R & D capability.
- Universities should identify and support researchers who are or have potential to be good marketers.

Issue 11: The Requirement for Research Parks

Comments/Information

- One requirement for attraction of international companies to support research is the availability of space on/near campus.
- The case of the University of Waterloo was cited as a caution, where there is 750 acres available for industrial development but industry has built elsewhere.
- The University of New Brunswick is considering a proposal to establish a research park in Fredericton.
- A research park must be more than real estate and office services, it needs to be an incubator of companies by providing technology management support and marketing services.

Recommendation

- ACOA should investigate the approach taken to research parks by the Alberta Research Council.

Issue 12: The Role of the Federal Government in Supporting Research and Development

12A: Funding for Research and Development

Comments/Information

- The lack of government funding for industrial research is a problem.
- Funding industrial R & D promotes technical success but not marketing which sometimes creates the situation of companies operating solely on government funding for R & D rather than sales of products which they develop.
- R & D funding support in Canada is overregulated, especially DSS contracts.
- The NSERC partners program was highlighted as fostering collaboration.
- Pure research is not a problem in Canada as evidenced by various reports. The weak link is bringing the results of R & D to commercialization.

Recommendations

- Government should be selective in providing funding support for industrial research and development.

- Government should focus its resources on bringing the results of R & D to commercialization.

12B: Activities of the Atlantic Canada Opportunities Agency

Comments/Information

- Some of the major initiatives which ACOA supported, such as the Canadian Centre for Fisheries Innovation, have been highlighted as being particularly successful. However, it is ironic that ACOA has lost the ability through its programs to fund such key initiatives.

- Making R & D funding repayable is like taking out a loan to buy a lottery ticket. It would be better to pursue the strategy being proposed for the Defence Industry Productivity program whereby a royalty position can be taken.

- One of the strengths of ACOA is its ability to bring together the various stakeholders in Atlantic Canada. Another is its ability to influence national policy, for example providing a regional perspective regarding the ongoing Science and Technology Review.

Recommendations

- Interventions by ACOA should concentrate in two areas:
  (1) How to attract more investment from the private sector:
  Possible Initiatives
  - research parks
  - establishment of chairs whose role is to undertake research with industry
  - provide incentives for individual researchers to pursue private sector work

  (2) Promote Pan-Atlantic collaboration

- Define the expectations of ACOA, the expectations of industry and the capability of universities to ensure that all stakeholders understand each other.

- Organize a follow up consultation on this issue to get the perspective of industry with a suggested mix of participants of 18 - 20 industry personnel and 2 - 3 university officials.

- ACOA should focus on the following areas:
  (1) Accountability -- to keep ACOA and universities accountable requires a results oriented focus;
  (2) Criteria -- ACOA should revisit some of the criteria it uses to limit its programs, such as repayability with reference to support to R & D;
  (3) Federal/Provincial Relations -- we should capitalize on opportunities to do things in a federal/provincial partnership in the Atlantic where federal/provincial jurisdiction does not present a barrier;
  (4) Cluster -- help new 'right' technologies to develop in the region, based on unique opportunities that exist here.

ATTACHMENT 1

LIST OF PARTICIPANTS

PARTICIPANTS:

University

Memorial University of Newfoundland

- Dr. A. May, President
- Dr. K. Keough, Vice-President (Research)
- Dr. V. Skanes, Acting Dean, Faculty of Medicine
- Mr. K. Clarke, Director, Centre for Institutional Analysis and Planning

- Mr. David King, President, Seabright Corporation
- Dr. J. Clark, President, C-CORE

Technical University of Nova Scotia

- Dr. E. Rhodes, President

University of New Brunswick

- Dr. R. Armstrong, President

University of Prince Edward Island

- Dr. L. Heider, Dean, Veterinary Medicine

Dalhousie University

- Dr. H. Dickson, Associate Dean, Faculty of Medicine

Industry:

Neweast Wireless Technologies, St. John's, NF

- Mr. D. Rowe, Chairman

Applied Microelectronics Inc., Halifax, N.S.

- Dr. D. Pincock, President

InNOVA corp

- Dr. R. MacInnis, CEO, Dartmouth, N.S.

Guigné International

- Dr. J. Guigné, Paradise, NF

National Research Council of Canada

Institute for Marine Dynamics, St. John's, NF

- Dr. B. Colbourne, Senior Research Officer for Advanced Products and Business Development

Institute for Marine Biosciences, Halifax, N.S.

- Dr. R. Foxall, Director General

ACOA Canada Opportunities Agency

- M. Abrams, Vice-President, ACOA Ottawa
- D. Robertson, Policy Analyst, ACOAOttawa
- D. Slade, Chief Economist, ACOA Head Office
- S. Griswold, Manager, Cooperation Program Delivery, ACOA PEI
- P. Mills, Director-General, Programs, ACOA Newfoundland
- P. Hogan, Account Manager, ACOA Halifax
- A. Miller, Project Officer, Innovation and Technology, ACOA Head Office
- N. Hoegg, Senior Economist, ACOA Head Office

ATTACHMENT 2

UNIVERSITIES AND ECONOMIC GROWTH

Background Paper Circulated by Dr. Kevin Keough
Vice-President (Research) Memorial University
and
Mr. David King
President Seabright Corporation

Universities and Economic Growth

It is widely acknowledged that Universities play a key role in basic research which serves as the intellectual foundation for economic growth and increasingly conducts applied research which accelerates commercialization by the private sector. Most universities have technology transfer offices which seek to actively license university inventions to the private sector and act as facilitators to help local businesses access university expertise and resources. Governments have supported these activities through Granting Councils and through economic development departments and long term economic benefits have and will continue to accrue from these alliances. The recent history of successful high technology and knowledge-based private sector enterprises indicates that they have flourished in sites where there is an existing strong base of intellectual capital and strengths in research and development.

Internationlly, two trends can be identified which may help focus our discussions:

1) Private sector R&D contracts go to world class researchers wherever they are.

2) Commercial facilities can often be attracted to establish operations adjacent to world class centres of R&D.

How is the Atlantic region positioned in relation to these trends? The performance of research is in itself already a significant industry which attracts millions of dollars to this region and employs thousands of people in relatively high quality jobs. Additionally, the base of skill people, research facilities and activities in universities within the region can serve as an important magnet for the attraction of high technology enterprises from outside the region. However, given the current and expected changes in the financing of higher education in the country, the traditional support for research and development that was available in university budgets is seriously threatened. In addition, the traditional sources of university R&D funding are becoming increasingly difficult to access from this region. Larger research bases, and higher private and public sector investment in people and facilities in other jurisdictions have jeopardized our competitive position for funds from these sources. This could undermine the direct economic benefit provided by performance of research and development, the ability for the institutions to be magnets for new knowledge-intensive enterprises, and to be sources of new ideas for development. Is there a role for ACOA in ensuring that there is a rigorous and healthy fundamental base for research and development which serves as the magnet for new private sector investment? Can the fundamental investment in equipment, facilities and people who do research and provide the attraction for high tech industry be increased?

The issue we seek to address in this roundtable is can we work cooperatively to increase our ability to attract more private sector R&D where the acknowledged economic activity is the SERVICE of conducting R&D and to attract investment in the region by promoting the R&D SERVICE capability.

Given government spending constraints university internal budgets are under increasing pressure and government research grants are decreasing. Unless a specified objective is to enhance the Universities' capability to conduct private and private sector R&D SERVICE contracts, other priorities will dictate university resource allocation decisions. The initial question is, can we agree that this should be an Economic Development priority. If so what resources are required - human, physical, financial - and how do we secure these resources?

- Can internal University policies and procedures accommodate this new priority - i.e. - recruitment procedures, salary levels, advancement criteria, etc.

- Can ACOA and the Provincial governments help us lever the required financial resources directly or can they be Advocates on our behalf federally?

- Can we act cooperatively to improve our ability to attract national and international private and public sector R&D spending to the region? Some activities of this sort have already started, for example, University cooperation is evident in the Atlantic Clinical Trials Consortium which seeks to increase pharmaceutical R&D spending in the region while University/private sector cooperation is evident in ACORN, a consortium of regional universities and telephone companies to promote the development of applications of broadband telecommunications. In Newfoundland, government, industry and institutions are working cooperatively to market our extensive marine research and development facilities and expertise.

In the area of Investment promotion can we work cooperatively to attract knowledge-based industries to our "Community of Expertise" as universities and various levels of government have done in the United States - for example the University of Texas attracting the Micro Electronics industry. Are there mechanisms to enhance the investment in bright, capable researchers in the institutions to increase our ability to attract new private sector enterprises.

Multinational promotion is essential; can ACOA enlist the assistance of other Federal Departments in this Investment activity? Many countries use Research Parks as a mechanism to attract high technology firms; should this be a consideration in Atlantic Canada?

Can university based R&D be an Engine for Growth? Can a healthy private-sector funded R&D SERVICE industry be developed within the Universities in the region and then act as the magnet which attracts the establishment of multi-national high-tech firms?

ATTACHMENT 3

PRESENTATION
TO THE UNIVERSITY-ACOA
SCIENCE AND TECHNOLOGY CONSULTATION

by

Dr. Bruce Colbourne
Science Research Officer for Advanced Products and Business Development
Institute for Marine Dynamics
National Research Council of Canada

An Objective for Research

Create economic activity

How government can contribute to best effect

- infrastructure
- tax credits
- own requirements

- concentrate research efforts - centres (S&T Review)

Why concentrated research

- increase critical mass
- clear focus for spin off industries (MIT - Route 128)
- reduce duplication - save money

- but the concentration is better if managed by a single interested group (coordination has not worked)

Our problem (or one of our problems)

Inadequate concentration

- No critical mass
- Internal competition
- crippled activity

Example - Ocean Technology (engineering only)

A strategic "area of concentration" for Newfoundland

Of 16 Institutions/Departments/Universities across Canada

The "Newfoundland centre of excellence" has approximately;

25% of the institutions,
70% of the capital, and
40% of the people.

Not enough

- to be dominant
- to support spin offs

Example - Ocean Technology (engineering only)

Caradian Government and Educational Research Centres - Ocean/Marine Engineering

	Name	Location	Staff	Expertise
1.	NRC IMD	St. John's	60	Ships, O/S Structures, Ice
2.	MUN eng	St. John's	30	Ships, O/S Structures, Ice
3.	MUN C-Core	St. John's	20	O/S Structures, Ice
4.	MUN MI	St. John's	20	Ships
5.	DFO BIO	Dartmouth	10	Submersibles
6.	DND DREA	Dartmouth	120	Ships, Acoustics
7.	TCNS	Halifax	5	Small Craft
8.	TC TDC	Montreal	5	Ships, Ice
9.	NRC Coastal	Ottawa	25	Ports, Waterways, Ice
10.	TC SSB	Ottawa	6	Ships
11.	TC CCG North	Ottawa	3	Ships, Ice
12.	DND DMEM	Ottawa	10	Ships
13.	EC CCIW	Burlington	5	Waterways
14.	UBC	Vancouver	4	Small craft
15.	BC Res	Vancouver	2	Small Craft
16.	DND DREP	Victoria	5	Submersibles

What to do

ACOA - A non-research agency with mandate for development - can encourage rationalization

- promote research concentration as a policy
- help decide what is to be concentrated where
- promote the concentration
- develop the community

Result

- save money
- create a strong well focussed domestic effort & market
- spin off industries will know where the action is

Consistent with

- a need for focus
- The S&T Review Research Community Concept
- strong domestic market base for international competition

ATTACHMENT 4

Response to Draft Report

InNOVAcorp

Nova Scotia Innovation Corporation

101 Research Drive
P.O. Box 790
Dartmouth, Nova Scotia
B2Y 3Z7
Tel: (902) 424-8670 Fax: (902) 424-4679

October 12, 1995

Dr. Kevin Keough
Vice-President (Research)
Memorial University of Newfoundland
St. John's, Newfoundland
A1C 5S7

Dear Dr. Keough:

My apologies for the delay in responding to you. I was pleased to participate in the round table science and technology consultation on August 25th. It was a good opportunity for me to hear and discuss the important issues of R&D funding and to get a wide perspective on it. Let me share some of my thoughts which, by the way, I have already provided to ACOA.

ACOA fills an important role in linking technology-based parts of the business community to the universities and, as well, provides "seed" funding for start-up firms. No other comparable financing vehicles exist outside federal/provincial mechanisms. Because of the high risk end of the technology firm growth spectrum, banks and others avoid it. I think ACOA should revisit its use of debt financing (i.e., repayment) if it wishes to help with technology commercialization in start-up and high-risk development/adoption.

To be fully effective in funding technology commercialization, ACOA must continue to work with partners who know something about "both ends" of the transfer of technology; i.e., the supply side (universities and others), and the demand side (private firms with needs). In my view, most existing partnerships are relatively weak and, hence, somewhat ineffective. They must strengthen these relationships and working arrangements and partners must better understand their relative strengths and weaknesses. Above all, we must be more flexible in dealing with the needs of firms. This is a people-intensive business and there is no substitute for competent account managers empowered to "get results".

InNOVAcorp is shifting its emphasis to technology commercialization. The key to our effectiveness will lie in our knowledge of the marketplace, our competence in both doing and delivering technology-based solutions with commercial payoff, and the strength of our relationships with our partners. We are strengthening our links to other Canadian research organizations to improve on our ability to tap into good sources of advice and assistance.

2 ...

As I stated at the meeting, it is not, in my view, an R&D problem, it is a business problem. While I understand the need for university R&D to be funded, and with respect for your contribution, I don't think it is a problem of lack of money. I believe that our Atlantic Canadian firms are not generally of a size and capability to absorb even a small fraction of the technology output of university-based R&D. They require a great deal of help in commercializing technology. This means not only technology advice and assistance but, more important, business skills and advice such as marketing, finance and, most of all, general management skills. There is also a great need to link both universities and firms tc external demand for their outputs if there is any hope of matching supply-side investment with demand-side utility of their outputs. I believe that various forms of "smart" incubation can be used in the commercialization process.

As you know, InNOVAcorp plans to work closely with universities and we plan to strengthen our working relationships in every way that we can. For example, we are working with TUNS, Dalhousie and the Nova Scotia Agricultural College on a joint effort to better focus on commercial opportunities arising from their research. If this model works well, we will be extending it to all universities in Nova Scotia. ACOA is an important partner in this work. We are developing innovative plans and strategies and we will be sharing these with ACOA in the weeks and months ahead.

Yours truly,

Rollie MacInnis
Chief Executive Officer

Copy: Wynne Potter, ACOA Halifax
Martin Abrams, ACOA Ottawa